

Technology enables this 100% blind student to earn a degree in mechanical engineering

Education



Giridhar NV was pursuing a bachelor's degree in mechanical engineering when he lost his vision completely. Mechanical engineering is especially challenging for someone who is completely blind but thanks to technology Giridhar finished his programme with distinction.

It was 2017 and Giridhar NV had just finished celebrating his 20th birthday with friends at home. He was living his childhood dream of studying mechanical engineering and was entering his third year at the **CMR Institute of Technology** in Bengaluru.



One day after the celebrations, he came down with dengue and due to some complications lost his vision completely.

"The news about the vision loss was given in a sequential order by my parents and my friend's mom, who is a counsellor", recalls Giridhar. "This gave me ample time to understand the situation and develop a positive mental attitude."

Lost vision midway through degree

Giridhar recovered from the attack but his career path hit a roadblock. Or so it felt. Few blind people attempt engineering as it is, instances of visually impaired people studying mechanical or electrical are even more rare. Giridhar was in a dilemma but even as it felt life was falling apart, the world came together for him.

"I was debating whether to resume my study or start a new course", he says. His enquiries brought him into contact with organisations like **Mitra Jyoti**, **Vividha Trust** and **EnAble India**. They supported him with lessons in living skills and familiarised him with assistive technologies for the blind.

Finding the right support

"EnAble India connected me to a few people who helped me understand how to go about doing my engineering degree, approach math, equations and other complex situations that come up while studying", says Giridhar.

"We had not come across any blind student pursuing mechanical engineering", says **George Sebastian, Accessibility Consultant, EnAble India**. "Most visually impaired people pursue computer science. We evaluated the syllabus and realised it was manageable except for some subjects involving design" Alongside EnAble India sensitised the CMR staff about Giridhar's needs.

From reading out measurements during lab exams to providing 3D printed materials, the CMR principal and staff ensured Giridhar felt enabled in every way. **Bookshare**, the eBook library for people with reading barriers, helped make textbooks accessible. He used MathML to access complex machine equations.

“ *The CMR faculty and friends made models that I could touch and feel the parts moving inside machines without hurting myself. The diagrams were embossed in paper so I could feel what it looked like and reproduce them in the exams. My friends were immensely supportive in terms of motivation and breaking down the complexity of the subject. I stayed positive and motivated thanks to them. – Giridhar NV, Mechanical engineer*

"I was studying civil engineering at a different college and 15% of our subjects matched", says Giridhar's childhood friend **Shilpa Swaraj**. "I would read things out and make the drawings using sticks and threads so he could feel them". She wrote most of his internal exams. Giridhar's experience motivated everyone who knew him. "We all complain that we don't have this or that, but I have never heard him say anything negative, ever".

Future dreams

Giridhar got his final semester results a few weeks back and has passed with distinction. "This shows that it is possible for visually impaired people to pursue this field of engineering", says George, who hopes this will encourage other visually impaired students.

As for Giridhar, his experiences have motivated him to think of a career in accessible technology. "Accessible and assistive technologies interest me deeply and so does the field of renewable energy resources"

He says his story shows the immense potential that lies in the world around. "All of us live in an era of immense opportunity. We have the potential to create our own ways and realise our dreams".

